



Installation & Service Manual Slim Rack In Wall Slide Out System With Control Box 1510000236 or 1510000276

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#3010002813, Rev. 0G



1510000236



1510000276

Installation and Service Manual Dual Planetary Gear motor Auto Programming Slim Rack Slide out System

Introduction

SYSTEM DESCRIPTION:

The Power Gear Slim Rack Slideout System is a rack and pinion design operated by a 12 Volt DC gearmotor. The system is designed to actuate rooms up to 1500 pounds and 30" stroke. Room slide out systems rated for higher weight or longer strokes can be obtained. Please contact Power Gear for application assistance.



NOTE

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Slide out systems are engineered to provide years of trouble free service. Changes to weight, stroke, weight distribution, rail position, controller, power supply, seals, slide toppers, ramps, rollers, etc. all have an effect on the performance of the system. In order to secure warranty coverage, each new application or changes to existing applications must be audited and approved by Power Gear with a signed document. Audits can be arranged by contacting your account representative.

MAJOR COMPONENTS:

- Rocker switch that mounts to the wall. It allows room movement and provides end user feedback.
- A specially designed control box that gives the user full control of room movement, in or out. The control has programmable stops that stop the motor when the room is fully extended or retracted and the ability to detect faults for ease in troubleshooting.
- Vertical channel with 12V DC gearmotor and gear rack arms that mount into the side wall opening and slide out room.
- Harnesses to connect the touch pad and motors to control box.
- Floor rollers (not supplied by Power Gear) that support the rooms weight while extending and retracting the room. Only floor rollers approved by Power Gear can be used with the system. Contact Power Gear for recommended rollers.

Installation

GENERAL REQUIREMENTS:

- Power and wiring must be such that there is **not less than 10.5 running volts** supplied at the motor leads under maximum load.
- Slide system controls must come from Power Gear. Controls supplied by other companies will void warranty.
- Voltage supply must come from a 12VDC automotive/RV type battery.



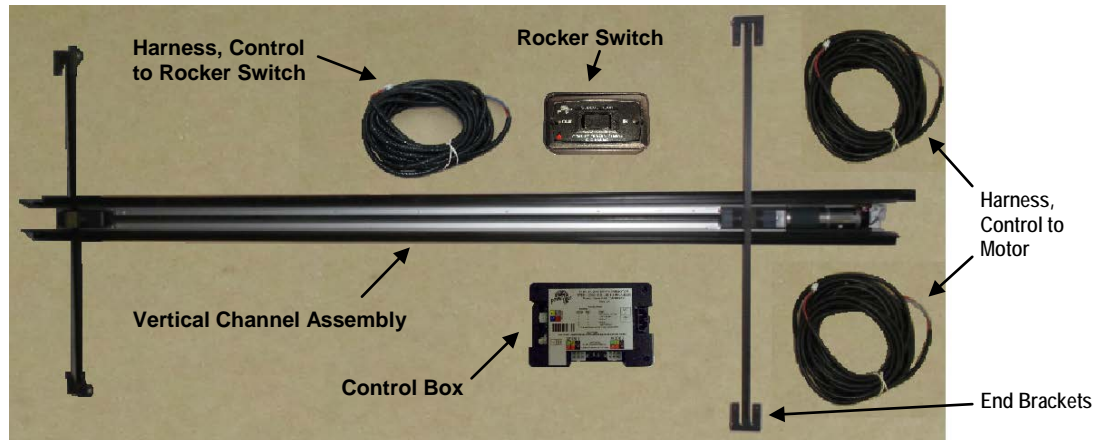


Figure 1

Power Gear Slim Rack® Slideout System Components**Installation (Continued)****Mechanical Components:**

1. Install Power Gear approved floor rollers. Consult roller manufacturer for proper installation procedures and location.
2. For sealing the screws used to attach end brackets, Power Gear recommends RTV silicone, rubber gasket, or closed cell foam gasket. **DO NOT** use any type of sealant putty as this can intrude into the mechanism and possibly cause the system to malfunction.

OPTION A - WITH INSTALLATION FIXTURE:

- 1a. An Installation Fixture (**FIG 4a**) is used to maintain even spacing between the upper and lower gear rack arms and the location of the end brackets. Even spacing between the gear rack arms and the location of the end brackets is critical for proper operation of the slide out. Installation Fixtures are reusable from system to system. Installation Fixtures are not supplied with system and must be purchased from Power Gear to aid in assembly and reduce installation time.
- 2a. Place the slide out mechanism into the installation fixture (**FIG 4a**) and bring the assembly up to the side of the slide room box (**FIG 3**), making sure that the end brackets are flush to the wall and up against the outer flange of the room. Be sure to keep the gear rack and the end brackets level when mounting (**FIG 4**).
- 3a. Secure each end bracket with four (4) flat head #10 screws (**FIG 6, pg 3**). A flat head screw must be used.
- 4a. Repeat steps 1a-4a for the other side of the slide out room. **Proceed to step #3.**

OPTION B - WITH DRILL FIXTURE:

- 1b. A Drill Fixture (**FIG 6a, page 3**) is used to pre-drill the mounting holes for the end brackets and maintain even spacing between the upper and lower gear rack arms. Even spacing between the gear rack arms and the location of the end brackets is critical for proper operation of the slide out. Drill Fixtures are reusable from system to system. Drill Fixtures are not supplied with system and must be purchased from Power Gear to aid in assembly and reduce installation time.
- 2b. Position the drill fixture so that the bottom flange of the fixture is pulled up against the bottom of the room.
- 3b. Move the drill fixture out so that it is up flush against the outer room flange.
- 4b. Drill all 16 holes (4 per end bracket) with a #25 drill bit.
- 5b. Place the slide mechanism up to the side of the room and secure end brackets with flat head #10 screws (**FIG 6, pg 3**). A flat head screw must be used.
- 6b. Repeat steps 1b-6b for the other side of the slide out room. **Proceed to step #3.**

Continued:

3. Lift the slide room box into coach opening and push in until mounting flange meets exterior wall.
NOTE: In some applications and interior mounting flange may be used. Install mounting flange once C-channel assemblies are properly installed.
4. Verify that the weight of the room is supported by the floor rollers and not the slide out mechanism (**FIGURE 5**). **NOTE:** If the room is not completely supported by the floor rollers, you will hear a slight "popping" sound as the room settles on to the rollers. This is normal, and there is nothing wrong with the system or the install.
5. Secure the mounting flanges to the unit's side wall (**FIGURE 6, page 3**).

Alternate Installation instructions for VERTICAL CHANNEL ASSEMBLIES with two flanges:

After steps 1-5 above are complete, it will be necessary to remove the inner flange (**FIGURE 7, page 3**) from each side of the **VERTICAL CHANNEL ASSEMBLIES** before lifting the room into position. Once room is in position, reinstall removed flanges.

Installation of the **VERTICAL CHANNEL ASSEMBLY** is now complete.



Figure 3 moving assy into position

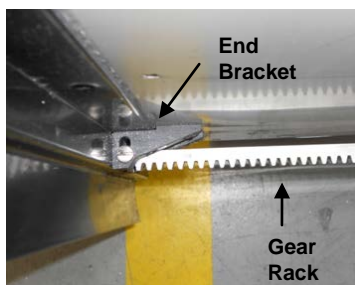


Figure 4

Figure 4a
Install Fixture



Figure 5



Figure 6

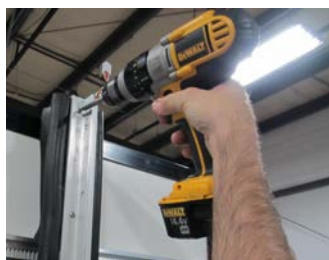


Figure 7

Wire Gauge	Maximum Length
16	10 feet
14	15 feet
12	25 feet
10	40 feet

Wire must be sized so that a minimum of 12.5 VDC is measured at the control while under a load.

Figure 8 Information is given as reference only

Installation (Continued)

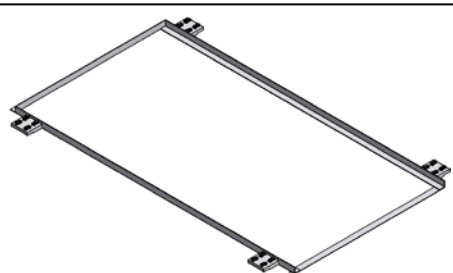


Figure 6a

Drill Fixture

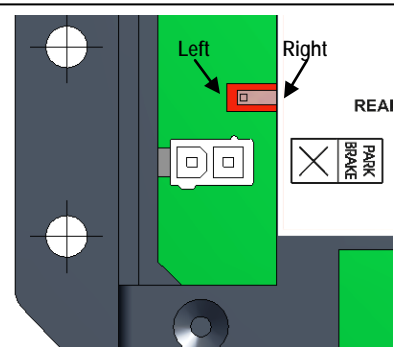


Figure 9A Park Brake Dip Switch on Control Box

Electrical Components:

1. Mount the **CONTROL BOX** (FIGURE 1, page 1) in a clean and dry, weather tight location that will keep it from being damaged, but is easily accessible for service. **The control is not waterproof.**
2. Determine location to mount the **rocker switch** (FIGURE 12, page 4). Location needs to be in view of slideout room and have minimum depth of 1" inside the wall.
3. Route and attach the harness to where the rocker switch will be mounted, and mount the rocker switch with two (2) screws.
4. Label the motor leads at both ends to aid in connections at the control box and motors. Route the motor/sensor harnesses from the slideout room motors to the control box.
5. Route the park brake input harness from the park brake signal source to the control box or to bypass the park brake input signal, move the dip switch at the park brake connector on the control box to the left (FIGURE 9A).

Note: It is important that the slideout motors be plugged in to the proper receptacle at the control box. Please see the **FIGURE 9** below for proper slide out motor designation. Failure to properly connect the motors to the control will result in problems for future troubleshooting. (The control will identify the incorrect motor during a fault).

5. Route and attach the **proper gauge wire** from the control to the 12V DC battery. See **FIGURE 8** to the left. It is recommended that this circuit be protected with a 30 amp fuse.

Installation of the In Wall Slideout is now complete. You are now ready to operate the slideout room.

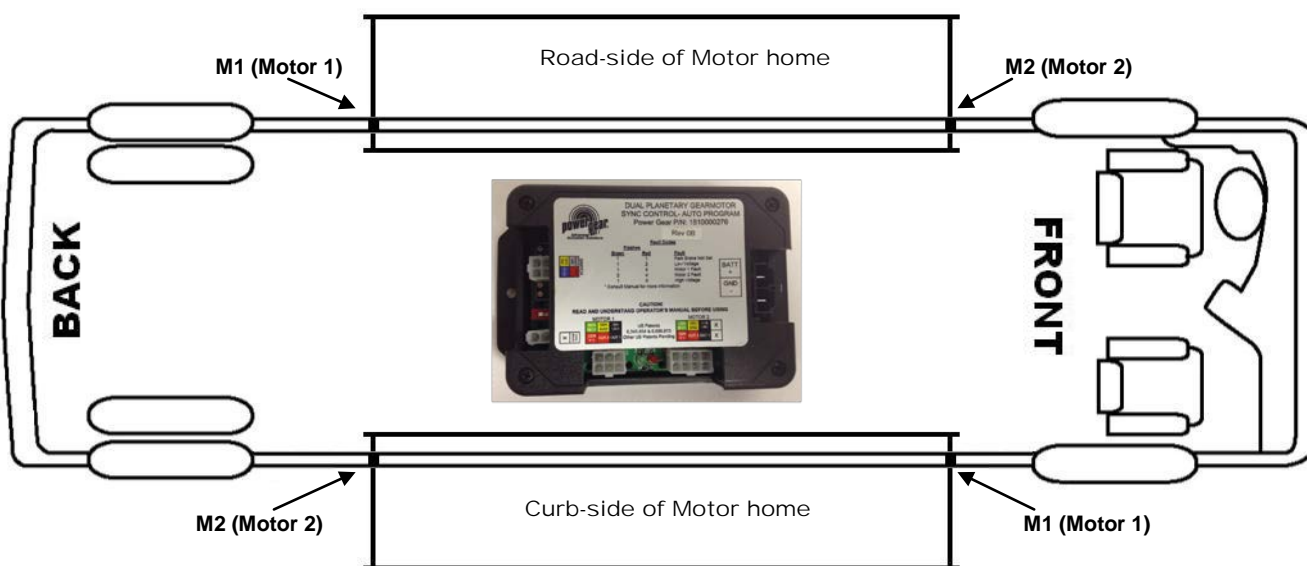


Figure 9

Proper designation of motors as M1 or M2

! WARNING

- Always make sure that the slideout room path is clear of people and objects before and during operation of the slideout room.
- Always keep away from the slide rails when the room is being operated. The gear assembly may pinch or catch on loose clothing causing personal injury.

! NOTE

The switch will need to be depressed and held down for 2 seconds after the room stops moving to correctly set the stop locations. This applies to both the IN stop (retracted) and OUT stop (extended). Failure to do so will cause the stops to NOT be set.

Program Mode

Use this procedure to SET the IN and OUT stops.

Note: To correctly set the stops. First fully retract the room to set the **IN stop** and then fully extend the room to set the **OUT stop**. **The switch will need to be depressed and held for 2 seconds after the room stops moving.** Failure to do so will cause the stops to **NOT** be set.

1. Press and hold the IN button on the wall rocker switch (**FIGURE 12**).
2. Move the room to the fully retracted position. Press and hold the **IN** button for 2 seconds after the room stops moving. Release the wall switch.
3. Visually inspect the room seal to make certain the room is fully retracted. If it is not, push and hold the **IN** button until fully retracted. This procedure may need to be repeated until both sides of the slide out are fully retracted.
4. You are now ready to set the **OUT** stop.
5. Press and hold the **OUT** button on the wall rocker switch (**FIGURE 12**).
6. Move the room to the fully extended position. Press and hold the **OUT** switch for 2 seconds after the room stops moving. Release the wall switch.
7. Visually inspect the room seal to make certain the room is fully extended. If it is not, push and hold the **OUT** button until fully extended. This procedure may need to be repeated until both sides of the slide out are fully extended.



Figure 12 Rocker Switch 1510000240

Installation Issues

The control box is equipped to help troubleshoot the system during installation. Count the number of LED flashes and refer to the **FAULT DIAGNOSTICS/TROUBLESHOOTING** section starting on **page 6** of this manual or on the label of the control box.

Note: It is important that the slide out motors be plugged in to the proper receptacle at the control box. Please see the **FIGURE 9** for proper slide out motor designation. Failure to properly connect the motors to the control will result in problems for future troubleshooting. (The control will identify the incorrect motor during a fault).

If you are still having difficulties programming the system (and prior to replacing the control), verify that the system has been wired correctly and that the **IN** stop location was programmed before the **OUT** stop location. See **FIGURE 9, page 3** for proper connection of the motors to the slideout control.

! WARNING

- Always make sure that the slideout room path is clear of people and objects before and during operation of the slideout room.
- Always keep away from the slide rails when the room is being operated. The gear assembly may pinch or catch on loose clothing causing personal injury.

Operation Mode

Prior to moving the slide out room:

- Make sure the engine or generator is running to ensure ample voltage is being supplied to the slide out control box.
- Set the parking brake, if applicable.

Extending the room:

1. The engine or generator must be running, or coach is plugged into shore power.
2. Transmission must be in park or neutral (if applicable).
3. Set the park brake (if applicable) and level the unit.
4. If equipped, remove the transit bars.
5. If equipped, turn "on" the on/off switch or key.
6. Press and hold the **OUT** button (**FIGURE 12, page 4**). There will be a slight delay before the room will begin to move, this is normal.
7. Release the button when the room is fully extended and stops moving.
8. If equipped, turn "off" the on/off switch or key.

Retracting the room:

1. The engine or generator must be running, or plugged into shore power.
2. Transmission must be in park or neutral (if applicable).
3. Set the park brake (if applicable) and level the unit.
4. If equipped, turn "on" the on/off switch or key.
5. Press and hold the **IN** button (**FIGURE 12, page 4**). There will be a slight delay before the room will begin to move, this is normal.
6. Release the button when the room is fully retracted and stops moving.
7. If equipped, turn "off" the on/off switch or key.
8. If equipped, install the transit bars.

Preventative Maintenance

Your Power Gear slideout system has been designed to require very little maintenance. To ensure the long life of your slideout system, read and follow these few simple procedures:

- When the room is extended, visually inspect the slide rail assemblies. Check for excess build up of dirt or other foreign material; remove any debris items that may be present.
- If the system squeaks or makes any noises, blow out any debris from the gear rack arms and apply a dry lubricant to prevent and/or stop squeaking.

If you have any problems or questions, see the contact tab on our website at www.powergearus.com

Fault Diagnostics/Troubleshooting

This control has the ability to detect and display several faults. When a fault is detected, the room movement may stop and two (2) different LED's on the control box will flash in a pattern.

- The **FAULT CODE LED** (**FIGURE 12, page 4**) on the rocker switch will flash **RED** a number of times corresponding to the number of red flashes on the control box (**FIGURE 12A**). Refer to the **TROUBLESHOOTING** chart on **page 6** to best determine what caused the fault.
- The **MOTOR LED** (**FIGURE 12A**) on the control box will flash **GREEN** a number of times corresponding to which motor had the associated fault.
 - For example: if you are seeing two (2) **GREEN** flashes and four (4) **RED** flashes, it means that there is a motor fault on motor 2.

Note: For major faults, the control will automatically enter "**Emergency Jog**" mode when motor movement is not detected by the control box in either direction during room actuation. When in "**Emergency Jog**" mode, the control will jog both motors in the direction the rocker switch is pressed (**IN or OUT**). The rocker switch may need to be pressed multiple times to fully retract or extend the room. Take the unit to an O.E.M authorized dealer for service. **NOTE: The control box will return to normal operation mode after 5 minutes of inactivity or by cycling power to the control box.**

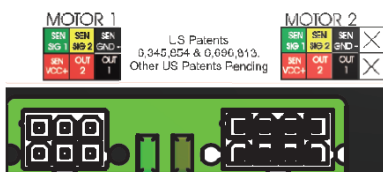


Figure 12A Green and Red LED's on control box

Fault Diagnostics/Troubleshooting (continued)**FIGURE 13****FAULT CODES**

Fault Code Number of Flashes		Fault Type	Description	Possible Cause	Possible Solutions
Green Flash	Red Flash				
1	1	Minor	Park Brake not set	<ul style="list-style-type: none"> Park Brake not set (if applicable) Ground signal lost at park brake receptacle at control box. 	<ul style="list-style-type: none"> Set parking brake (if applicable). Check for continuity to ground on wire plugged into park brake receptacle at control box.
1	2	Minor	Low Voltage	Incoming voltage to control is below 12.0 VDC. The room will NOT move if the voltage is 10.5 VDC or below.	Start vehicle, generator, or ensure plugged into shore power. Check 2-pin power connector at control box at BATT + and GND -. Consult manufacturer of unit charging system for troubleshooting assistance.
1	4	Major	Motor 1 Fault	<ul style="list-style-type: none"> Bad wire connection Bad motor 	<ul style="list-style-type: none"> Refer to TIP Sheet 82-S0533 for troubleshooting.*
2	4	Major	Motor 2 Fault	<ul style="list-style-type: none"> Bad wire connection Bad motor 	
1	6	Minor	High Voltage	Supply voltage to control box is 17 VDC or greater.	Consult manufacturer of unit charging system for troubleshooting assistance.

*This tip sheet and other updated troubleshooting information can be found on our website at www.powergearus.com.

# of RED flashes	# of GREEN flashes

Figure 14

Override Mode

In the event of component failure or loss of system power, your slideout can be manually overridden and retracted for travel.

Note: At any time during the override procedure, the unit will exit this mode if the room has not been moved for five (5) minute.

Note: For major faults, only 1510000236 control will automatically enter "**Emergency Jog**" mode when motor movement is not detected by the control box in either direction during room actuation. When in "**Emergency Jog**" mode, the control will jog both motors in the direction the rocker switch is pressed (**IN or OUT**). The rocker switch may need to be pressed multiple times to fully retract or extend the room. Take the unit to an O.E.M authorized dealer for service. **NOTE: The control box will return to normal operation mode after 5 minutes of inactivity or by cycling power to the control box.**

Use T.I.P Sheet 82-S0544 to reset control box 1510000276

MANUAL EMERGENCY RETRACT MODE

In the event that power is lost to the slide out motor(s) the room can be manually retracted by following these steps:

- You will need to gain access from either the inside or outside (which ever is more convenient) of the coach to the **VERTICAL CHANNEL** assembly. The motors are currently located at the top of channel.
- If applicable, remove the top screw from the bulb seal at the top of the **VERTICAL CHANNEL (FIGURE 15)**.
- Pull down the bulb seal and remove the motor cover (**FIGURE 16**). The motor cover may stick to the bulb seal.
- Using a pick tool, remove the end of the retaining spring from the motor spring clip (**FIGURE 17**).
- Unplug the motor from the harness and remove the motor by lifting it up and out.
- Repeat steps 1-4 for the other side.
- Push the room into the retracted position.
- Secure the room in place by either re-installing the motors (making sure the end of the retaining spring is rehooked to the motor spring clip and the motor retainer is fully engaged) or using a travel lock, 2 x 4 (cut to size) etc.
- Have the slide out room serviced by the O.E.M. authorized dealer as soon as possible. Do not operate room until service is complete as damage to the room may result.

! WARNING

- Always make sure that the slideout room path is clear of people and objects before and during operation of the slideout room.
- Always keep away from the slide rails when the room is being operated. The gear assembly may pinch or catch on loose clothing causing personal injury.

Override Mode (continued)

Note: For major faults, the control will automatically enter "**Emergency Jog**" mode when motor movement is not detected by the control box in either direction during room actuation. When in "**Emergency Jog**" mode, the control will jog both motors in the direction the rocker switch is pressed (**IN or OUT**). The rocker switch may need to be pressed multiple times to fully retract or extend the room. Take the unit to an O.E.M authorized dealer for service.

NOTE: The control box will return to normal operation mode after 5 minutes of inactivity or by cycling power to the control box.



Figure 15 Removing the bulb seal screw

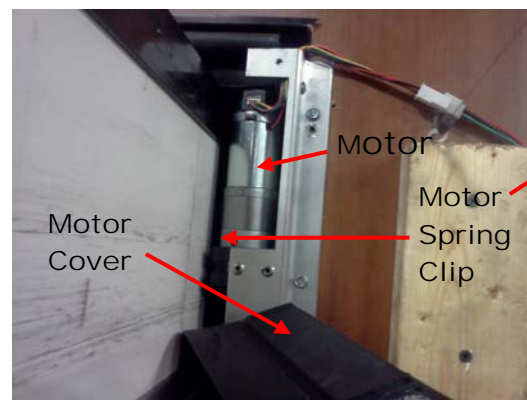


Figure 16



Figure 17



Figure 18 8-point star socket

Note: It may be possible to manually retract the room by accessing the $\frac{1}{2}$ " square drive tube at the bottom of each vertical channel assembly. This will only be possible if there is access to this area.

1. You will first need to follow steps 1-6 as detailed above.
2. Using a $\frac{1}{2}$ " 8-point star socket (**FIGURE 18**) and alternating from one side to the other, turn the $\frac{1}{2}$ " square drive tube to bring the room in. A 15 mm 12-point socket is an option if the $\frac{1}{2}$ " 8-point star socket is not available. Use caution, as the 15 mm 12-point socket does not fit as snug as the $\frac{1}{2}$ " 8-point socket.
3. When the room is retracted, secure the room per step 8 shown on page 6.
4. Have the slide out room serviced by a dealer as soon as possible. Do not operate room until service is complete as damage to the room may result.

Override Modes (continued)

Note: It may also be possible to manually retract the room by using a ratchet and socket attached to the end of the coupler (**FIGURE 18**).

1. You will first need to follow steps 1-6 under the Manual Retract Mode section to remove the motor.
2. Place a socket wrench with a 3" extension and 5/8" deep well socket (**FIGURE 19**) through the motor access opening and seat the socket onto the coupler. One man alternating from side to side of the room is able to retract a 1500 lbs. room with or without a ramp.

Note: 1 person per side of the room (2 total) with ratchet and socket will expedite the process. Room moves approx.. 1/4" for every 30-40 degree turn of the wrench.

3. Secure the room in place by either re-installing the motors (making sure the end of the retaining spring is re-hooked to the motor spring clip (**FIGURE 17**) or torque the motor retaining screw to 40 in lbs. (**FIGURE 16**) and the motor retainer is fully engaged) or using a travel lock, 2 x 4 (cut to size), etc.
4. Have the slide out room serviced by an O.E.M. authorized dealer as soon as possible. Do not operate room until service is complete as damage to the room may result.

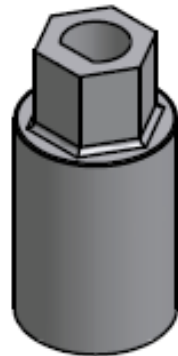


Figure 18 Coupler



Figure 19 Ratchet with 3/8" extension and 5/8" deep well socket



Figure 20 Ratchet inside motor access with socket on coupler

Wiring Information for Control Box 1510000276

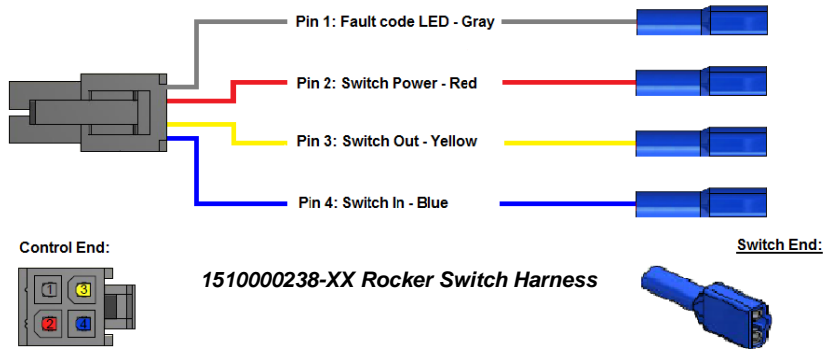


Figure 21

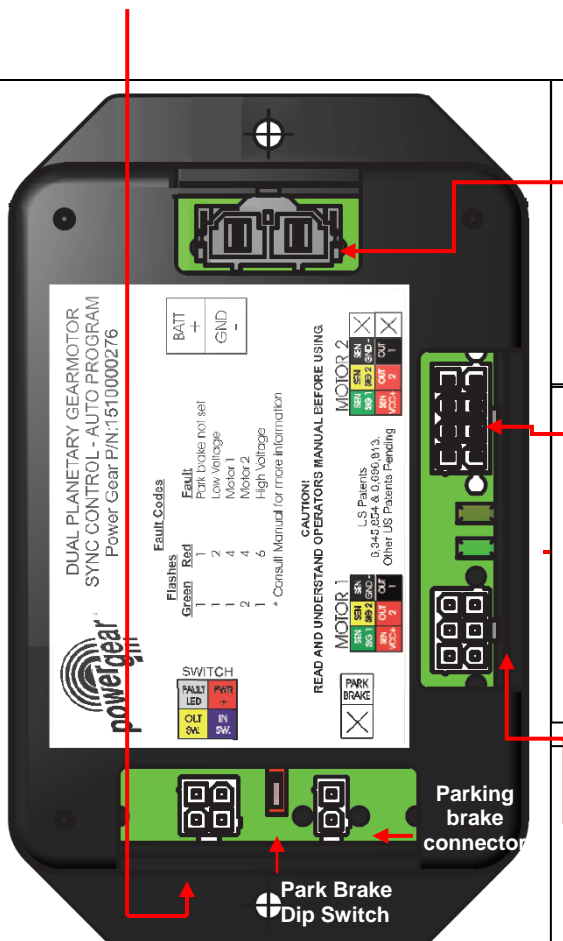
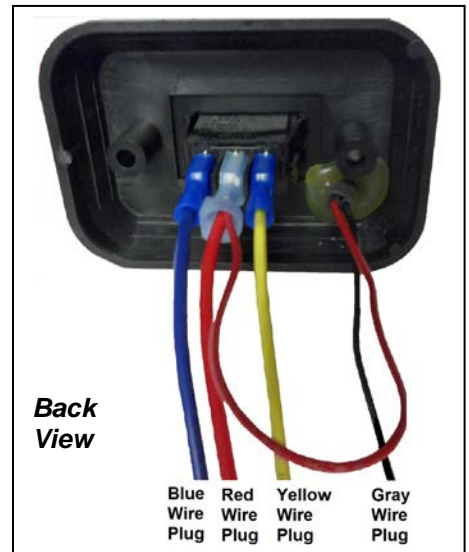
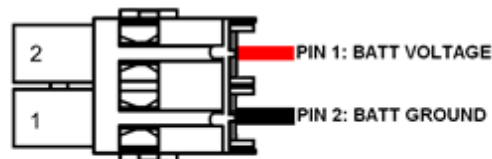
Figure 22 **Control Box 1510000276****Power Harness 1510000233**

Figure 23 **1510000233 Power Harness**

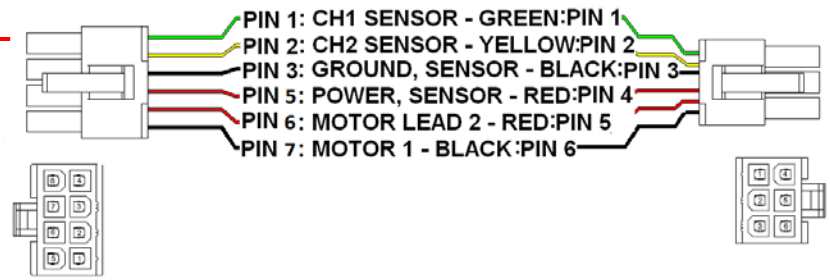


Figure 24 **1510000277 control to motor harness**

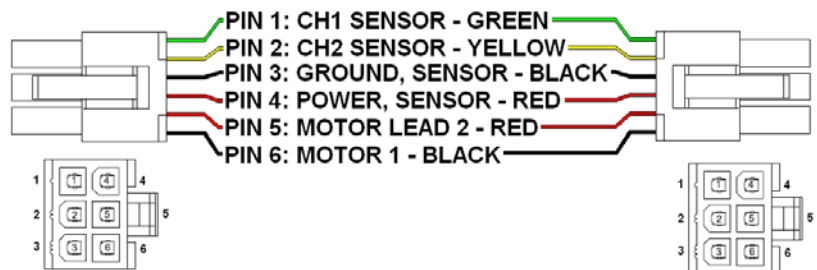


Figure 25 **1510000194 control to motor harness**

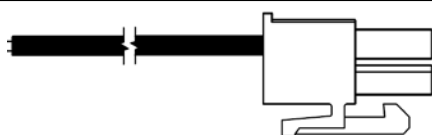


Figure 26 **Park Brake Harness** 1510000237-XX

Wiring Information for Control Box 1510000236

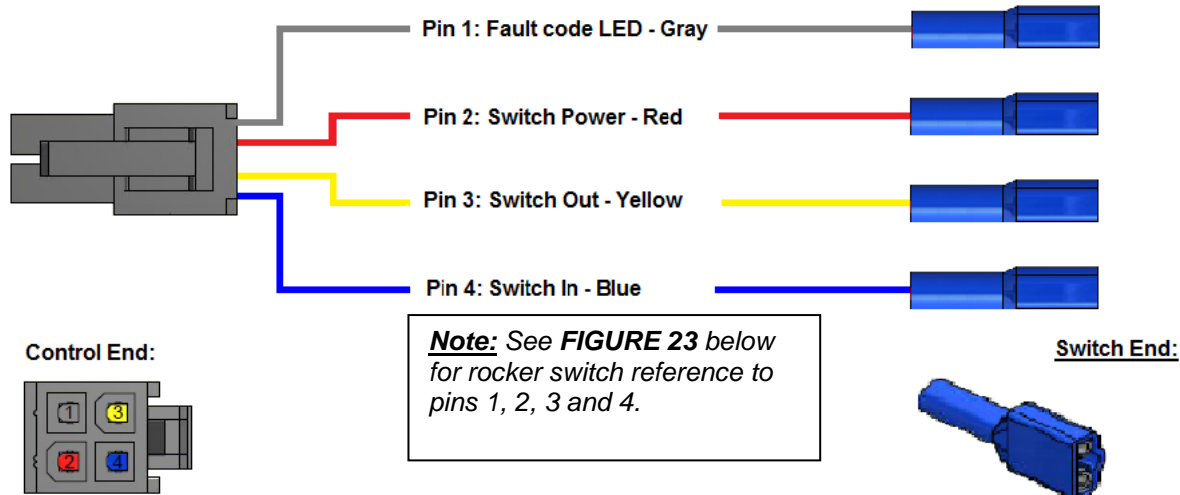


Figure 27

1510000238-XX Rocker Switch Harness

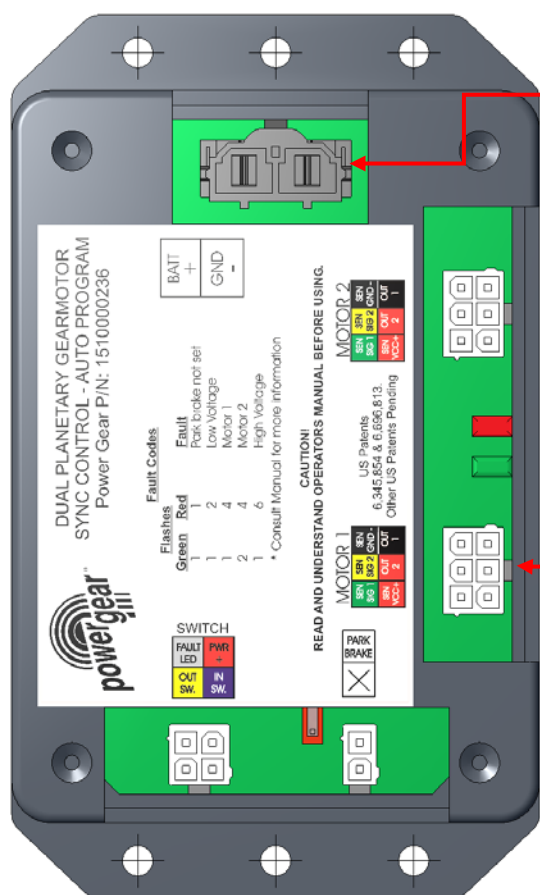


Figure 28 Control Box 1510000236

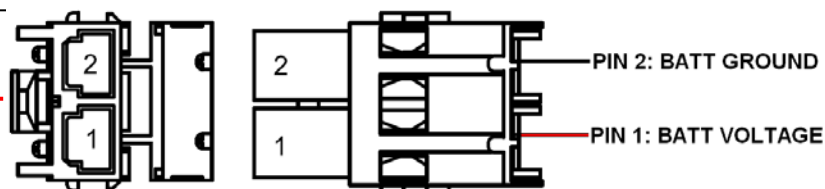


Figure 29

1510000233 Power Harness

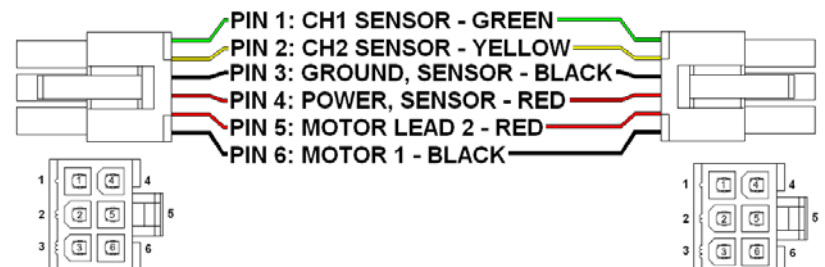


Figure 30

1510000194 control to motor harness

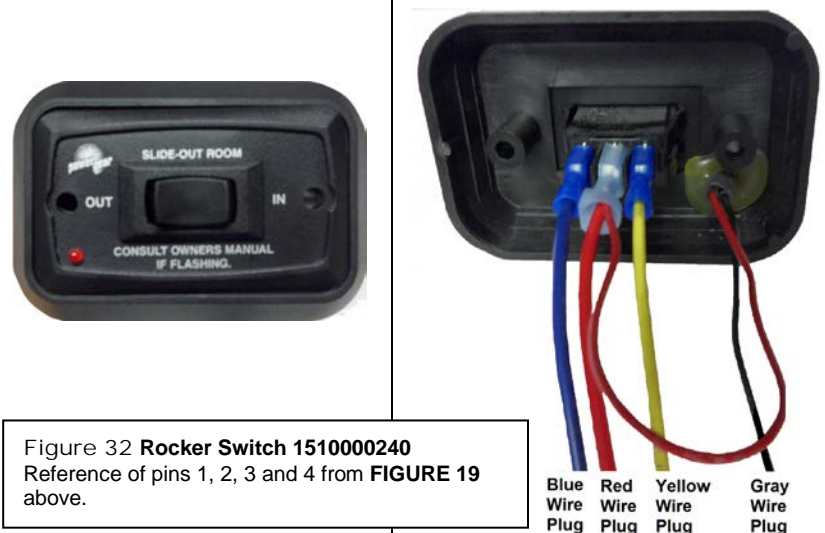


Figure 31 Park Brake Harness 1510000237-XX

ADDITIONAL REFERENCE PUBLICATIONS LOCATED AT WWW.POWERGEARUS.COM

<u>Document #</u>	<u>Description</u>
3010002814	Owner's Manual Slim Rack In Wall Slide out System
82-S0533	Trouble Shooting Slide Out Control Box 1510000236 or 1510000276 For In-Wall Slim Rack Systems
82-S0534	Encoder Test 1 Dual Planetary Gear Motor Sync with Control Box 1510000236 or 1510000276
82-S0535	Encoder Test 2 Dual Planetary Gear Motor Sync with Control Box 1510000236 or 1510000276
82-S0544	1510000276 Slide Out Control Box Reset Procedure

Power Gear Limited Warranty

Power Gear Limited Warranty Policy (Original equipment)

Power Gear warrants its manufacturer installed Power Gear and Kwikkee brand products to be free of material and workmanship defects for two (2) years from the date of the original sale of the motor vehicle/recreation vehicle (RV) in which they are installed, provided that these products are installed and operated according to the purpose for which they were intended, designed and specified. This warranty does not cover product that is incorrectly installed, or upon examination has been misused or abused by the vehicle owner.

Warranty coverage includes:

- Repair or replacement of the defective component(s) of the malfunctioning system. Entire systems are not replaced unless either the faulty component is not replaceable or all components comprising the system are defective.
- Labor costs for the diagnosis and repair work associated with the repair or replacement of the defective component(s) by a licensed servicing center.

This warranty does not include payment or reimbursement of:

- Normal system maintenance and preventive maintenance.
- Mobile service or towing expenses related to field repairs and/or the transportation of the vehicle to a repair facility.
- Living or travel related expenses incurred in the repair of the vehicle.

By filing a warranty claim in accordance with Power Gear's Warranty Administration Procedure, service providers agree that the replacement part(s) will be provided to the vehicle owner at no cost and that the total labor charges for the completion of warranty repairs will be billed to Power Gear. Accordingly, under no circumstances will Power Gear reimburse the vehicle owner directly for costs covered under this warranty policy.

Warranty coverage runs concurrently with any vehicle warranty period provided by the manufacturer, and is transfer-able to subsequent owners. Proof of original date of purchase of vehicle, and if applicable subsequent owner's proof of purchase, is required to confirm coverage.

Power Gear reserves the right to change the terms of our warranty policy at any time. For the most current information on product warranty and our warranty claim procedure, visit our website at www.powergearus.com.